RTCA Special Committee 186, Working Group 3

ADS-B 1090 MOPS, Revision A

Meeting #10

In-Band Acceptance Test Procedure

Presented by Jerry Anderson

SUMMARY
At the RTCA SC-186 Plenary that approved DO-260, a new paragraph was inserted at section 2.2.4.3.1.1.c, but there was no associated test procedure drafted to test the added paragraph. This Working Paper proposes a new Test Procedure to cover the subparagraph "c."

During the RTCA SC-186 Plenary in June 2000 which approved DO-260, I asked that a new subparagraph "c" be added to section 2.2.4.3.1.1, as shown below. Unfortunately, no Test Procedure was added to test this new subparagraph. This Working Paper proposes the text of a new Test Procedure to correct the oversight.

2.2.4.3.1 In-Band Acceptance and Re-Triggerable Capability

2.2.4.3.1.1 In-Band Acceptance

The MTL requirements provided in the following subparagraphs are specified at the Antenna end of an Antenna to Receiver transmission line having loss equal to the maximum for which the receiving installation is designed.

a. The MTL of an ADS-B receiver processing signals over the frequency range of 1089 to 1091 MHz shall comply with the MTL limits provided in Table 2-62 for the applicable receiver Equipment Class.

Table 2-62: ADS-B Class "A" Equipment Receiver Sensitivity

EQUIPMENT CLASS	A0	A1	A2	A3
MTL	**-72** dBm	**-74** dBm	**-79** dBm	**-84** dBm

Note: *The MTL limits of Table 2-62 must be complied with over the entire environmental operating range specified by the manufacturer of the receiver (e.g., receiver performance variations over temperature and other conditions must be taken into account).*

b. In the absence of interference or overloads, each ADS-B receiver shall properly detect and decode at least 99% of all ADS-B messages received at an input signal level between the MTL + 3 dB and -21 dBm.

c. In the absence of interference or overloads, each ADS-B receiver of equipment class A3 shall properly detect and decode at least 15% of all ADS-B messages received at an input signal level of -87 dBm.

Notes:

1. This requirement need only be tested under ambient conditions.

2. The intent of this requirement is to emphasize the desirability of taking advantage of signals received below the required MTL.

I propose the following test:

Insert a new Step 4 in Paragraph 2.4.4.3.1.1.2, that reads:

Step 4: Verify Class A3 Unit Under Test Receiver Performance

Decrease the input signal power level to –87 dBm. Verify that the receiver properly detects and decodes at least 15% of all ADS-B Messages input.

Further, I propose to change the current “Step 4” to “Step 5” and change the “Repeat Steps 1 through 3” to “Repeat Steps 1 through 4.”

Finally, I propose that the title of paragraph 2.4.4.3.1.1.2 be changed by adding “and c” at the end, indicating which subparagraphs the test procedure addresses.